

MULTIUSER DSSS-OFDM MULTIBAND FOR ULTRA WIDEBAND
COMMUNICATIONS

Abstract of the Disclosure

A multiuser direct sequence spread spectrum (DSSS) Orthogonal Frequency Division Multiplexing (OFDM) multiband of Ultra Wideband (UWB) for a short-distance wireless broadband communication is disclosed for the indoor environment of UWB operation. Eleven multi-frequency bands are employed, with each of the multi-frequency bands having 650 MHz bandwidths. A 1024-point IFFT and FFT with 1000 subcarriers are used to carry data and pilot information within each of the multi-frequency bands. The multiuser DSSS-OFDM multiband of UWB base station communication transmitter can transmit N different users at the same time by using a unique spreading sequence for each of the N different users. A QPSK modulation is employed for a different data rate with scalability in the environments of multi-frequency bands. The maximum transmitting data rate of the multiuser DSSS-OFDM multiband of the UWB communication system is up to 5.541 Gbps within the short-distance in the indoor environment.